WHAT IS CLAIMED IS:

1. A method for identifying a Na^+ channel blocker, said method comprising the steps of:

disposing a cell comprising a Na^+ channel blocker into a well, the channel blocker demonstrating both a transient and a persistent current, said cell comprising a potassium (K) channel and a Na/K AtPase (Na^+ pump);

disposing a fluorescent dye into said well, said florescent dye being sensitive to change in cell membrane potential in order to enable optical measuring of cell membrane potential;

adding the Na^+ channel blocker, to be identified, into said well;

passing a stimulating current through said cell sufficient to generate an action potential before and after the addition of the Na^+ channel blocker; and

optically measuring a change in cell membrane potential.

2. The method according to claim 1 wherein a potassium conductance (gk) of the cell is of a magnitude enabling an addition of potassium to the cell to cause a measurable depolarization and a conductance of a persistent component Na^+ channel ($gNa_{persistent}$) sufficiently large to produce a voltage change when extracellar Na^+ is introduced into the well.

3. The method according to claim1 wherein the cell is engineered with K and Na^+ channels in order that relative conductance of the K channel and a portion of the Na^+ channel , that generates the persistent current are very similar.

4. The method according to claim 1 wherein the cell is engineered with K channels, voltage gated Na^+ channels, containing a portion with persistent current, and an ouabain-sensitive Na/K ATPase (Na^+ pump) and the method further comprises the step of adding ouabain to the well in order to block the Na^+ pump.

5. A screen for identifying a Na^+ channel blocker, said screen comprising:

at least one cell comprising a Na^+ channel, the channel demonstrating both transient and a persistent current, said cell further comprising a potassium (K) channel and a Na/K ATPase (Na^+ pump);

at least one well for containing said cell;

a fluorescent dye sensitive to change in cell membrane potential in order to enable optical measurement of cell membrane potential; and

electrodes disposed in said well for passing a stimulating current through said cell sufficient to generate an action potential before and after the addition of the Na^+ channel blocker, to be identified, to said cell.